



AN ENERGY STAR BUILDINGSSM AND GREEN LIGHTS[®] CASE STUDY FOR City of Phoenix, Arizona

Project Director
Paul Hudson,
Energy Management Specialist

Partner Since
February 1994

Total Committed
Square Footage
2.9 million

Location
Phoenix, Arizona

"We are proud to be a part of the U.S. Environmental Protection Agency's ENERGY STAR BuildingsSM and Green Lights[®] Partnership. The unbiased energy-efficiency information they provide has enabled us to improve the energy use in our facilities which has benefited both our bottom line and the environment."

—Paul Hudson,
Energy Management Specialist

Partnering with EPA

The city of Phoenix joined Green Lights[®], the first stage of the ENERGY STAR BuildingsSM upgrade strategy, in February 1994. Prior to joining, city facility managers had already heard of the Green Lights Partnership, and were impressed with its reputation. The city's Green Lights implementation director, Paul Hudson, noted that "Everyone knows about Green Lights when you mention that you are a partner." The Partnership's good reputation, coupled with its free technical assistance, prompted the city to join. As a Green Lights partner, the city's goal is to implement an energy-efficiency approach that includes upgrading the lighting in city facilities as well as incorporating energy-efficient technologies into new construction.

Investing in Energy Efficiency

Phoenix has funded many of its upgrades internally through money from the Capital Improvement Fund administered by the Energy

		Progress to Date
Project Costs	Total Expenditures	\$970,000
	Dollars per Square Foot	\$0.35
	Total Square Footage Upgraded	2.7 million
	Percent Upgraded	95%
Cost Savings	Annual Dollar	\$286,700
	Dollars per Square Foot	\$0.18
	Internal Rate of Return	38.5%
Energy Savings	Annual kWh Savings	3.4 million
Pollution Prevention	Annual Carbon Dioxide (lbs)	4 million
	Equivalent Cars off the Road	402
	Equivalent Acres of Trees Planted	550



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Management Section of the Public Works Department. Because public funding is often-times scarce, the city has augmented its own funds by taking advantage of rebates offered by Arizona Public Service. The Phoenix Central Library was one of the first city buildings to benefit from such rebates. By implementing energy-efficiency measures that included the use of sunlighting, the library earned one of the largest rebates ever from Arizona Public Service.

Making an Impact

Pursuant to its goal of implementing a lighting upgrade plan, the city of Phoenix surveyed its facilities to identify energy-saving opportunities. The city's Calvin Goode Municipal Building was one of the buildings identified in the survey that could benefit from lighting upgrades. To reduce the building's lighting energy use, technicians installed energy-efficient T8 lamps and integrated electronic ballasts to replace the building's less efficient T12 lamps and magnetic ballasts. These upgrades resulted in decreased energy use and lower utility bills for this facility. The upgrades also improved the building's environment, providing higher illumination which increased occupants' comfort. Spurred by the success of the Municipal Building's upgrades, Phoenix sought to incorporate energy-efficiency measures in some of their new construction projects.

The Phoenix Central Library was one of the first city buildings constructed with energy efficiency in mind. The building was designed with an open floor plan and many windows and skylights to provide the library with a plentitude of natural light. Coupled with the energy-efficient use of daylighting, the library is lit by efficient T8 fluorescent lamps with electronic ballasts. The combination of more efficient bulbs and the use of daylighting created a lighting load of only 1.14 watts per square foot. Moreover, the library's design reduced the kilowatt load by 207 kilowatts or 845,960 kilowatts per year.

Communicating Partnership Success

Recognizing the value of promoting their energy-efficiency accomplishments, Phoenix has made many efforts to show taxpayers the value of the city's energy-efficiency upgrades. Especially proud of its new library, the city promotes the building's energy-efficient technologies on the library information card. Phoenix also promoted its participation in Green Lights by distributing energy-efficiency information at the April 1998, City Employee Fair. The Green Lights materials featured an informative poster as well as compact fluorescent light giveaways. Phoenix continues to promote its participation in ENERGY STAR Buildings and Green Lights and its upgrades in the city's enterprise zone.

Planning for the Future

The city is currently working with the Waste Water Plant's facilities managers to help them reduce their overhead costs by implementing energy-efficiency measures. After demonstrating the benefits of the Green Lights approach to Waste Water management, the city of Phoenix is confident that it will be able to reduce the energy use in the Waste Water facilities. So far, the Plant's management has been very receptive to the Green Lights strategy and has committed to upgrading its facilities.